

PATENT SPECIFICATION

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COMPLETE SPECIFICATION

Improvements relating to Gill Boxes

We, SOCIÉTÉ ANONYME INTERMIN, a Joint Stock Company organised and existing under the laws of the Grand Duchy of Luxembourg, of 80, Place de la Gare, Luxembourg, Grand Duchy of Luxembourg, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to textile machines, of the kind commonly known as gill boxes (including single faller and intersecting gill boxes), serving to make parallel and to compact the fibres of the material when the latter has been almost completely treated. In the said gill boxes the material is drawn across a field of needles by means of rollers, and it will readily be understood that the pressure on the drawing rollers of the gill box must be considerable, and must be easily regulated if the same machine is to be used to treat successively different fibres such as wool, cotton and so forth. Hitherto, the said pressure has been obtained by utilising the weight of a drawing roller in combination with an arrangement of springs or of counter-weights acting on each end of the compressing roller.

It is easily understood that such arrangements leave much to be desired from the point of view of a uniform equalisation of the force exerted on the roller or rollers. In fact unequal pressure on the one or on the other end of a roller axle will cause the latter to run out of true, resulting in a pressure on the fibres which decreases towards that end of the axle on which the pressure is least; consequently the body of fibres is not uniform in thickness and further adjustment is necessary. This adjustment is rendered very difficult with apparatus using springs or counter-weights.

The springs give, in effect, a pressure

which varies according to changes of temperature, whilst the counter-weights are subject to vibrations which obviously affect the pressure which they exert on the members to which they are connected.

According to the invention, however, a gill box wherein textile material to be treated is drawn across a field of needles by means of rollers to one or more of which a pressure is applied, is characterised in that the said pressure is obtained by hydraulic means.

The advantages of this arrangement are very great because it dispenses with the hand operation necessary for the frequent regulation required to obtain uniform pressure, and the latter may be kept always constant, by causing the desired pressure to be transmitted from a master cylinder to each of a plurality of auxiliary or compressor cylinders. This pressure may be easily controlled in a visual manner, by the insertion in a suitable part of the machine of a pressure gauge.

Besides, a single master-cylinder may be sufficient to distribute the necessary pressure to one or more gill boxes working in series.

It will be readily realised that it is impossible to show even diagrammatically all the various ways in which the present invention may be carried out.

The accompanying diagrammatic drawing is given by way of example only, and not in a limiting sense.

Figure 1 of the drawing is a diagrammatic view of the invention as applied to a single roller.

Figure 2 represents diagrammatically the invention applied to two compressor rollers controlled by the same master-cylinder.

Figure 3 is a view of different rollers belonging to different machines and all controlled by a single master-cylinder.

According to Figure 1 the fibre-receiv-

ing roller 2 of a gill box is controlled by two connecting rods 2^a furnished with a piston (not shown) in a cylinder or receiver 3^b, the pistons being operated by liquid pressure transmitted from a single master-cylinder 3 to the auxiliary cylinders or receivers 3^b through conduits or tubing 3^a, the latter and the three cylinders containing a suitable liquid. The pistons in the receivers or cylinders 3^b are thus more or less pushed back, so that the pressure desired is caused to act on the ends of the roller 2, the latter co-operating with the roller 4 the axle of which turns in fixed bearings.

According to Figure 2, two rollers 5 and 6 of a gill box are controlled by a single master-cylinder 7, and the pressure exerted on the two said rollers is always uniform by reason of the constant action of the said master cylinder.

Figure 3 shows four cylinders, each belonging to a different gill box, controlled by the same master-cylinder, the pressure applied being made visible by the connection of pressure gauges 8 mounted on the different machines.

Both manual and automatic means may be provided for controlling the hydraulic pressure.

What we claim is:—

1. A gill box, wherein textile material to be treated is drawn across a field of needles by means of rollers, a pressure being applied to one or more of the said rollers, characterised in that the said

pressure is obtained by hydraulic means.

2. A gill box, as claimed in claim 1, wherein both manual and automatic means are provided for controlling the hydraulic pressure.

3. A gill box, as claimed in claim 1 or 2, wherein the hydraulic pressure is applied to a roller at a plurality of points, or is applied to a plurality of rollers, and a single master-cylinder controls through auxiliary cylinders the pressure applied at the said points, or to the said rollers.

4. Apparatus comprising a plurality of gill boxes each in accordance with claim 1 or 2, wherein a single master-cylinder controls through auxiliary cylinders the hydraulic pressure applied to the rollers of the said gill boxes.

5. A gill box which has hydraulic means for applying pressure to a roller as herein described with reference to Figure 1 of the accompanying drawing.

6. A gill box which has hydraulic means for applying pressure to rollers as herein described with reference to Figure 2 of the accompanying drawing.

7. Apparatus which comprises a plurality of gill boxes having hydraulic means for applying pressure to rollers, as herein described with reference to Figure 3 of the accompanying drawing.

H. N. & W. S. SKERRETT,
24, Temple Row, Birmingham, 2.
Agents for Applicants.

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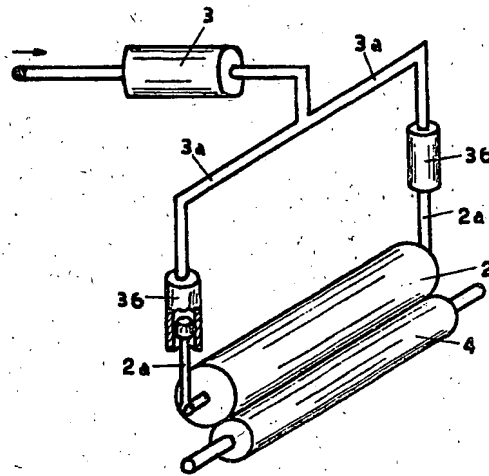


Fig. 2.

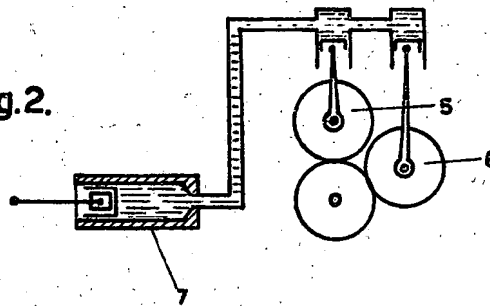


Fig. 3.

